MEMBERS' VOLUNTEER COMMITTEE

Winter 1969
Volume 2, Number 1

ROTUNDA the bulletin of The Royal Ontario Museum

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The Cover:

Detail of Indian head sketched by Paul Kane near Lake Superior in 1845. *See page 5.*

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Female in mosaic. Carthage, late fourth century

Spotlight

Comments on current and future activities at the ROM

ROTUNDA, with this issue, begins its second year of publication. In its first year, the magazine reflected some dramatic changes and events at the Museum. Through the efforts of Director Peter Swann, the Museum corner at Bloor Street and Queen's Park was transformed into an attractive, treed plaza featuring free-standing display cases of Museum objects. On July 1, the ROM became independent after 20 years as part of the University of Toronto, a move permitting greater flexibility in the Museum's operation and future planning. A short time later, passersby were choking in a sandstorm blowing off the building facade. When the dust cleared, decades of grime were gone and the building was as impressively bright as when the new wing opened in 1932. Several weeks later the Museum plunged into a Fall Festival with a list of activities as long as a gorilla's arm. The children's carnival attended by almost 4,000 . . . Prized Possessions from Private Homes, biggest exhibition ever organized by the ROM . . . ROMarama, a party-with-a-purpose (membership) that attracted 2,500 paying guests and was described by one broadcaster as the highlight of the social season . . . the week-long programme leading up to the Nov. 2 public opening of the McLaughlin Planetarium . . . these were a few highlights of the Festival. Exhausted staff and volunteers decided the effort was worthwhile when they considered the results. More than 12,000 people attended the special Festival events and functions . . . total Museum attendance in October up 40 per cent to over 102,000 . . . more than 90,000 children booked to attend Planetarium Star Theatre school shows to June 26 . . . full houses at virtually every public show with advance ticket sales booming . . . a jump of 700 in Museum Membership from Sept. 1 (when the Festival was announced) to Oct. 31.

Well, that's a sampler of the variety at the ROM in ROTUNDA's first year. Its second year, 1969, promises to be just as exciting, just as challenging, and just as hectic.

Scene from a Comedy in Tunisian floor mosaic. Late second century

TUNISIAN MOSAICS began the New Year's schedule of major exhibitions at the ROM. On display until Feb. 16, the 80 mosaics, stone monuments, frescoes, ceramics and terra-cottas reflect changes within Tunisia from the Roman period of the first century A.D. to the beginning of Byzantine domination in the sixth century. This is a massive show, not so much in terms of individual items, but in their size and weight. The largest mosaic is more than six feet by eleven feet and weighs 1,600 pounds. Total weight of the collection is in excess of 11 tons, a challenge to those who mounted it for display and to the support floors of the Museum. Most of the mosaics are from the second to the late third century A.D., a period when Tunisia, the Roman Empire's African colony, prospered mightily. Homes of the wealthy had almost wall-to-wall mosaic flooring illustrating hunting scenes, myths and comic situations. The exhibition originally was co-operatively organized by three museums: in Tunis, the Netherlands, and Germany. Negotiations between Washington's Smithsonian Institution and the government of Tunisia brought it to North America for a two-year tour.

Hercules crowned by Victoria. Tunisian, late second century

Ship at Dock. From Hadrumetum, c. third century

THE McLAUGHLIN PLANETARIUM, already a landmark in Toronto, opened its second public Star Theatre show Jan. 7. Called "Ways of the Planets", the show continues to March 2 and is presented at scheduled times daily except Mondays. Because of the crowds, which continue to exceed all expectations, some changes have had to be made in operations. Visitors are advised to book their show tickets in advance, and on Sundays only those with Star Theatre tickets are admitted to the building. On other days, the building is open to those who wish to see only the astronomical displays. Residents outside Toronto may obtain tickets for Star Theatre performances by writing the *Advance Booking Office, McLaughlin Planetarium, 100 Queen's Park, Toronto 5, Ontario*, stating when they wish to attend, an alternative date, and the number of tickets required. Enclose a self-addressed, stamped envelope and a money order or cheque for the total amount. Tickets are $1.00 for adults, 50 cents for children and students. Note that youngsters under eight are not admitted to the Star Theatre.

RESPONSE to the Planetarium from children who have attended class shows has been enthusiastic, judging by their letters. Wrote one grade five youngster: "I liked it best when the man made the sun go down and the stars come out and . . . made the whole room turn round." Said another: "I would have liked to have seen more on the aurorae and the noctiticent clouds." But one young lad indicated businesslike tendencies. He wrote: "It is a big planetarium . . . and its probably one of the biggest in the world. I would be proud to own something like that. You must make a lot of money." Practically all the children's letters have a common refrain: they didn't have enough time to see everything and they want to visit again.

Letters to the Planetarium are only a portion of those received by the Museum from children. Recently ROM Director Swann had a note from a boy in Selkirk, Man., saying: "I would like to know what qualifications you must have to become a director of a Museum. I am 13 and am wondering if it would be worthwhile to try and be one. I am very interested in history and *hope some day to take your job.*" Mr. Swann replied, in part: ". . . I hope you will study very hard, take a job in a museum and finally be in a position to take over from me. By the time you do this I shall just about be ready to retire."

Paul Kane sketches

by Kathleen Wood

Ethnology Department

The Royal Ontario Museum's magnificent collection of the works of Paul Kane, Canada's foremost pictorial historian of the Canadian Indian, is a monument to the generosity of two men. In 1912 Sir Edmund Osler presented to the ROM 100 Paul Kane oils. In 1946 Major R. A. Willis added to the collection 343 Paul Kane field sketches, including a small green sketch-book Kane had carried with him to Europe and on his first trip from Toronto to Sault Ste Marie.

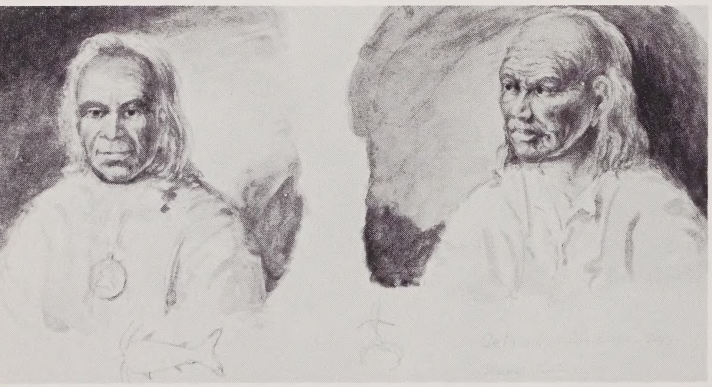
Although Kane's oils are deservedly well-known, his field sketches, reproduced in this article, have never before been published. Yet ethnographically and historically they are more important than the oils, because of their spontaneity and their accuracy in portraying the Indians of the 1840s as the artist encountered them.

Paul Kane was born in Mallow, County Cork, Ireland in 1810 or 1811, and emigrated with his parents to Canada at the age of eight or nine. The family settled in York, a muddy and dirty little town of few more than a couple of hundred houses scattered along the water-front lowland and surrounded by the primeval forest. In York of the 1820s Indians were a familiar sight. The town was the seat of government, and groups of Indians came to treat with the Indian agent, or to seek aid during the long winters when food became scarce and wild game was elusive.

After a few years at the local grammar school young Kane was sent to learn carpentering with a furniture maker. There the designs and adornments he carved in wood first revealed his artistic talents. When the Society of Artists and Amateurs of York held its first exhibition in 1834, Kane was one of the exhibitors.

A ridge-pole lodge, with conical lodges in the distance. The metal pot shows the influence of contact with Europeans. To the right of the lodge stands a bedding frame

About 1835 Kane went to Cobourg, where he painted portraits of local notables and in a year managed to save enough money to go to the United States. After five years he left the United States to tour the great art centres of Europe, copying and studying the works of the great masters.



Portrait of an Ojibwa chief, his status indicated by the government medal hanging from his neck. The catfish totem at the bottom signifies the clan to which he belongs

Four years later he returned to Canada, determined to "devote whatever talents and proficiency I possessed to the painting of a series of pictures illustrative of the North American Indians and scenery." He planned two journeys into the wilderness in order to sketch the people in their natural environment. On his first trip, leaving Toronto on June 17th, 1845, he explored the shores and islands of Lake Huron as far as Sault Ste Marie, travelled into Wisconsin, and returned to Toronto December 1st of the same year. The sketches reproduced here were all made during this first trip, and chronicle the Indians of Upper Canada (now Ontario) and Wisconsin.

In the century and a half since Champlain first voyaged up the Ottawa River in 1615, the Indian population of Upper Canada had made many changes of residence. Between the years 1640 and 1650 the Hurons had been completely destroyed as a nation by the Iroquois who then lived in present-day New York State. The Iroquois later established a few villages on the north shore of Lake Ontario, but had abandoned them by the early part of the 18th

century. By this time the Ojibwa or Mississaugas (as they are known locally) had moved into southern Ontario, and their settlements extended from the area around Peterborough to the mouth of the Niagara River. They thus controlled the approaches to Mackinac and the immensely valuable trade there. In 1805, the Ojibwa sold to the government all of the Toronto area, extending as far east as Scarborough Heights, for ten shillings.

During the second quarter of the 19th century, other Indians—the Potawatomi, Ottawa, and perhaps a few Menomini and Shawnee—entered southern Ontario from the United States. The Potawatomi and the Ottawa came to Canada out of dissatisfaction with the Milwaukee Treaty of 1833, by which their land west of Lake Michigan was ceded to the United States government and they were to be moved to what is now Iowa and Kansas. Some Potawatomi and Ottawa wandered aimlessly in southern Ontario, having no land of their own, and eventually settled in the villages of the Ojibwa. The majority of the Ottawa moved to Manitoulin Island.

In 1836, by the terms of a treaty signed at Manitowaning on Manitoulin, the Ottawa and Ojibwa relinquished their claims to all the adjacent islands but retained Manitoulin as a residence for all Indians under the protection of the government. In the same year the "Saukings" (Saugeens) signed a treaty surrendering their territory to the government. In return, they could live on Manitoulin Island or move to a Saugeen territory north of Owen Sound, where houses were to be built for them, and assistance given to enable them to become "civilized" cultivators of the land.

Although both government and missionaries were attempting to have the Indians conform to a more settled way of life by setting aside certain areas or reserves for them, building schools and churches, and encouraging them to farm, when Kane visited the Indians in 1845 they still retained much of their own culture.

On Paul Kane's first trip into the Indian country he travelled alone, carrying "but my portfolio and box of paints, my gun, and a stock of ammunition, taking the most direct route to Lake Simcoe"—the "Yonge Street

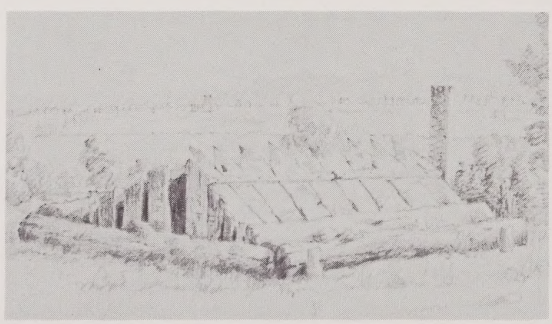
A group of portrait sketches. Some show headgear of European influence. The woman setting a snare wears European dress with moccasins and leggings

trail" first opened by Governor Simcoe in 1796. He crossed Lake Simcoe by steamboat to Orillia and then went overland to Sturgeon Bay on Lake Huron, where he hired an Indian with a canoe. By paddling all night, they overtook at Penetanguishene the packet which carried Kane to Owen Sound.

Hearing that a council of Ojibwa and Ottawa chiefs was meeting 35–40 miles west of Owen Sound, Kane set off immediately with an Indian guide, and arrived before noon the next day at the Indian village of Saugeen.

At the Saugeen meeting, the last of the General Council, were chiefs from Lakes St. Clair, Huron, Ontario and Simcoe, and from Rice and Mud Lakes. The main object of the meeting was to devise plans by which the tract of land then owned by the Saugeen Indians could be held for the sole benefit of the "Ojibwa Nation;" to petition the government for aid in establishing a Manual Labour School; and to sound out the chiefs on the possibility of forming one large settlement at Owen Sound for them all.

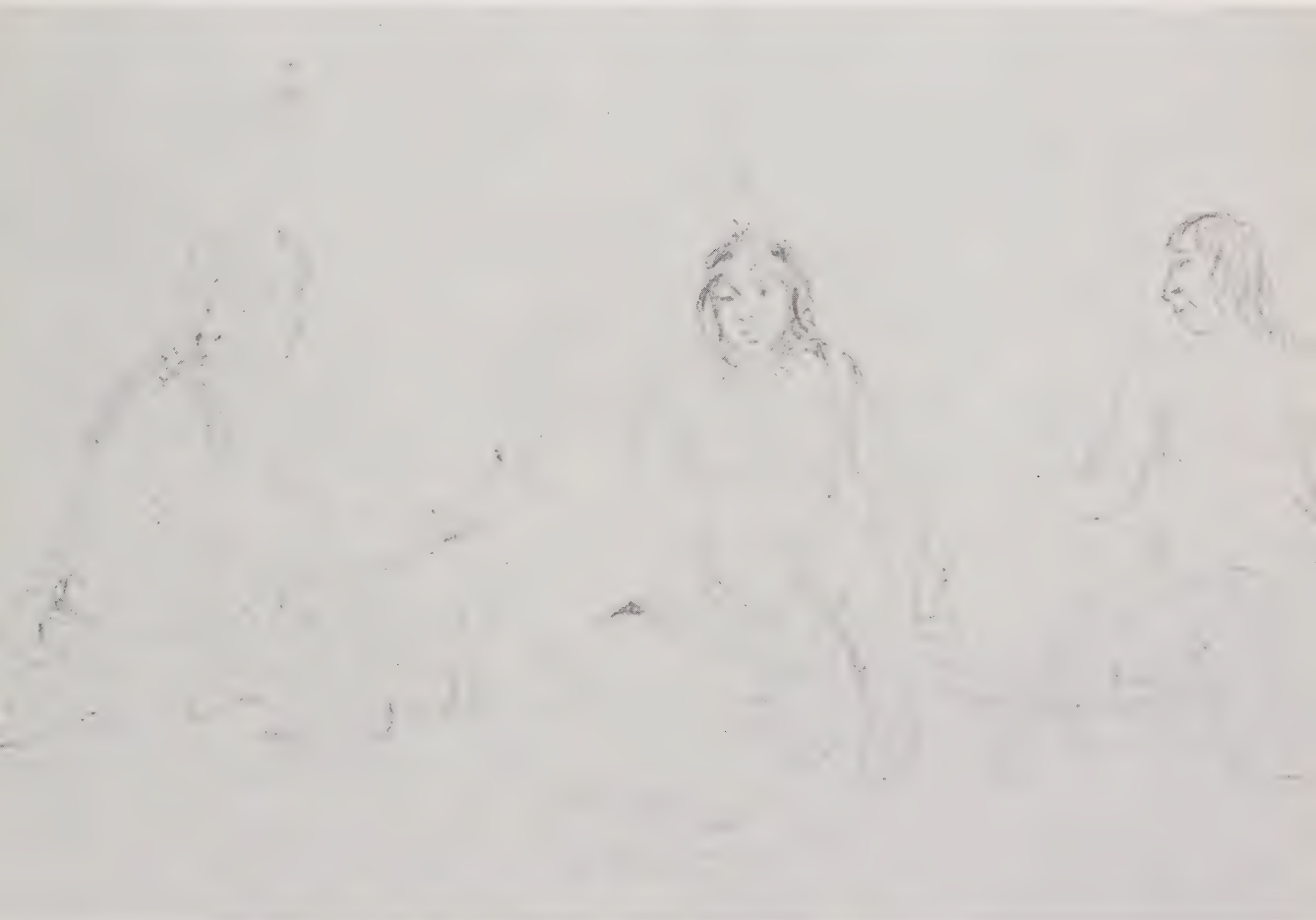
Birchbark canoes. Smaller canoes were used for fishing, trapping, hunting and gathering wild rice, the larger ones for transporting trade goods and furs



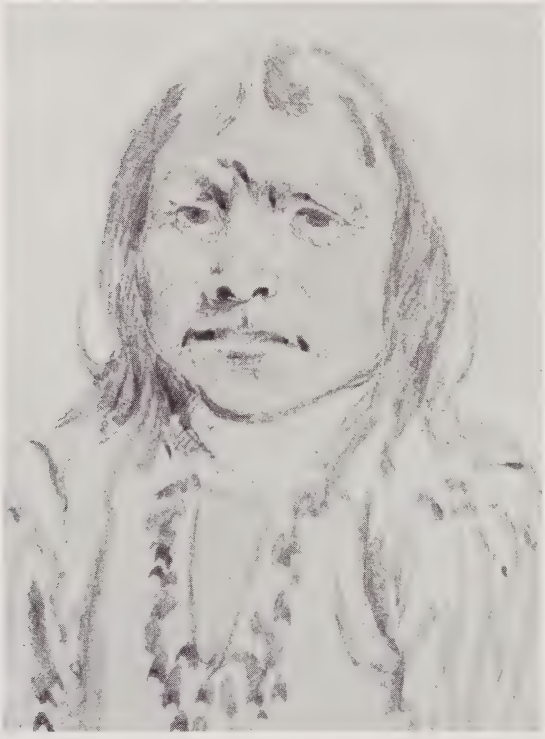
Ojibwa grave. The Ojibwa buried their dead in a hole about three feet deep, with the head turned towards the west. Beside the corpse were placed his hunting and war implements—gun, bow and arrows, tomahawk, pipe and tobacco, and other articles customarily carried on a long journey. Over the filled grave were placed poles in a peaked-roof effect, to protect the body from animals and weather, and to make a place where the spirit of the dead man could be fed

A typical Ojibwa woman. Her hair, parted in the centre, hangs down in a braid at either side. Her dress is probably of deerskin, and a deerskin mantle is thrown over her shoulders

The Indians spent much of their leisure time in playing games—lacrosse, hoop-and-javelin, and (in the winter) snow-snake. In games of chance they would often lose everything they owned



Saugeen chief, Kaw-gun-dah-bow-neva-skung (Dawn of Day)



Islands in Georgian Bay, Lake Huron

It is not known how many sketches Kane did during his ten days at Saugeen. One drawing bears an inscription, presumably in Kane's writing, *Kwa-gun-dah-bow-neva-skung, Dawn of Day, Chief of Saugeen Indians Jany* (sic) *24th 1845.*

On his return to Owen Sound, Kane purchased a canoe and provisions in preparation for his journey to Manitowaning, an Ottawa village some 200 miles to the north, on a deep bay at the eastern extremity of Manitoulin Island in Lake Huron. He and a companion spent several days exploring and sketching islands and Indian camps in Georgian Bay and along Lake Huron.

Entering Manitowaning Bay, Kane found nearly 2,000 Indians, from distant camps on Lakes Superior, Huron and Nipissing, awaiting their annual presents of guns, ammunition, kettles, cloth, tobacco and various useful implements. The village of Manitowaning itself consisted of 40 or 50 log cabins which had been erected for the Indians by the provincial government. Here was "a mission with a church and pastor, an Indian agent, a doctor and a blacksmith, all paid by the Government."

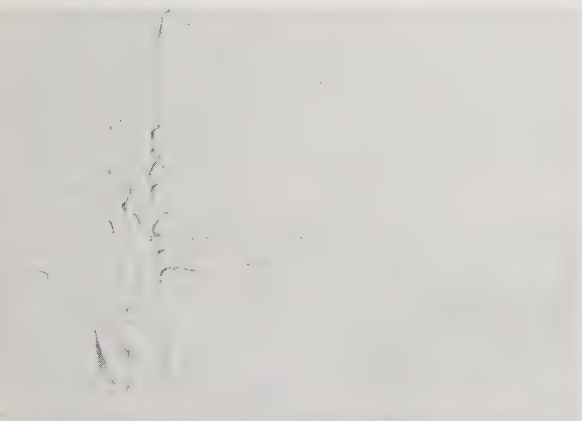
After a fortnight on Manitoulin Island, Kane went on to Sault Ste Marie by steamer. There he found a small "factory" of the North-West Fur Company, a few log huts occupied by some French Canadians and voyageurs in the service of the company, and a village of Ojibwa.

Here in the rapids of St. Mary's River the celebrated whitefish, *Attikamak* or "caribou of the water" were caught. One method of taking them was with a dip-net, a pole about ten feet long with a net bag attached to the end. Two Indians in a bark canoe would venture into the rapids, the seated stern canoeist handling the craft while the bow passenger stood up and wielded the dip-net. The bow man, spotting a fish in the water, signalled its location to the paddler, who dexterously placed the canoe in the proper position for the bow man to deftly scoop up the fish and throw it into the canoe.

At Mackinac, which the Indians called Mitchi-mac-inum or "the big turtle," Kane sketched the fortress with the American flag

Indian camp beside Georgian Bay

En route to Manitoulin, Kane and his companion landed on Spider Island to escape a heavy shower, and Kane spent the balance of the day sketching.



Water-colour sketch of pipe, serpentine inlaid with lead. Stem decorated with dyed eagle feathers. Probably carved by Au-bon-waish-kum, whom Kane described as a chief of great ingenuity and judgment

Pencil sketch of Sig-in-nock-ence, son of the principal chief Sigennok who signed the Treaty of 1836 and was appointed to distribute to his tribe their share of the annual government presents

Water-colour sketch of Much Boze Black Bear, Ottawa chief

flying, and below, along the water's edge, the village of Mackinac. Strategically situated in the straits between Lakes Huron and Michigan where the early trade routes converged, Mackinac had been known to fur traders, travellers and tourists for more than 150 years.

Here Kane met more Ojibwa and Ottawa Indians, 2,600 in all, who had assembled to receive their payment of $25,000 for land ceded to the United States.

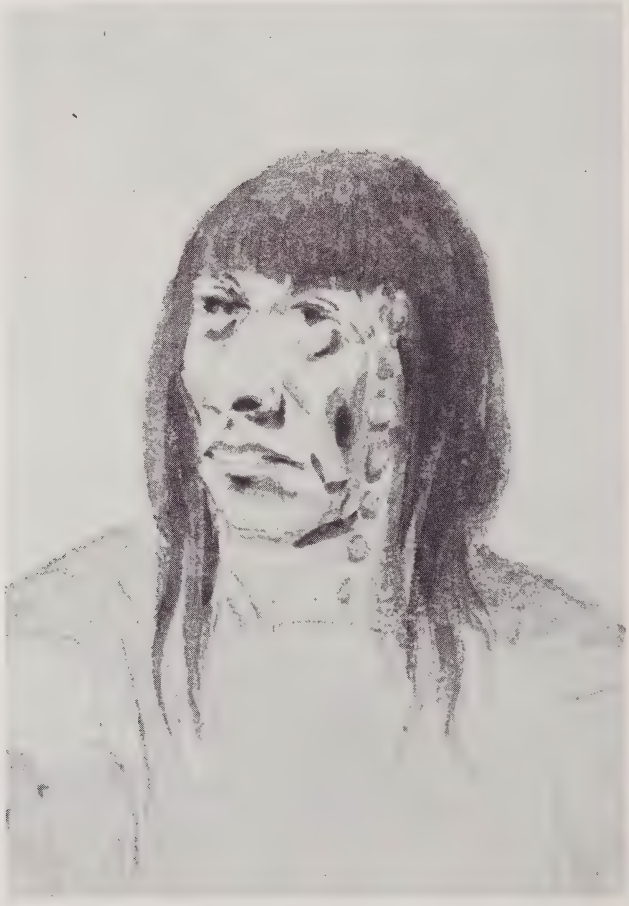
After remaining three weeks at Mackinac, Kane went on to Green Bay, Wisconsin, the start of an important portage and canoe route between the west shore of Lake Michigan and the Mississippi River. After a week in Green Bay he and three other gentlemen travelled the portage route as far as the Fox River, where the Menomini Indians were gathering to receive payment for lands sold to the United States government in the vicinity of Lake Winebago. On the Fox, Kane saw Indians spearing salmon by torchlight—a sport which in his boyhood he had witnessed and even practised in Toronto Bay. He must have sketched the scene, although we have no record of the sketch, for an oil of the subject is in the ROM collection.

Lodges in Ojibwa village, Sault Ste Marie

Scooping whitefish from the rapids of the St. Mary's River

The American fort and Indian village at Mackinac

"I made a sketch of Coe-coosh, 'the Hog,' one of these Pottowattomie black-legs, whom I saw intently engaged in gambling."



At their camp, about 3,000 Menomini Indians awaited the arrival of the agent with their money. A large body of traders had also set up booths to display their wares. Several Potawatomi were also visiting the Menomini camp: Kane regarded the Potawatomi as despoilers of the Menomini, for they generally came when the Menomini were to receive their government money, and often managed to fleece their hosts of what they had received.

Kane stayed at the Menomini camp for three weeks. But once the Indians had received their government money, such drunkenness and brawling ensued that he set out for home—by steamer to Fond du Lac, by hired wagon to Sheboygan on Lake Michigan, and thence again by steamer for Buffalo and Toronto.

On his second and longer journey he left Toronto in May, 1846, and travelled by canoe, boat, horseback and snowshoes across the vast plains as far west as Vancouver, arriving back in Toronto in October, 1848, with a bulky sheaf of sketches. The paintings Kane made from the sketches of his two trips among the Indians constituted his only publication, "Wanderings of an Artist Among the Indians of North America," which was published in London in 1859. His original notes were purchased by the late Mr. Stark of Texas, and are now in the custody of Mrs. Stark. Kane's sketches are an invaluable ethno-historical document relating to the Indians, primarily of Canada, and their way of life during the middle of the last century.

Born in Thorold, Ontario, Kathleen Wood always has had an absorbing interest in Canadian history, particularly that neglected area, Indian history. She joined the staff of the ROM Department of Ethnology in 1958. After studying world ethnology with Dr. E. S. Rogers, the Curator, she was placed in charge of the Ethnology collections. These collections contain approximately 60,000 specimens from a host of different cultures all over the world. Mrs. Wood's major interest, however, is in the collections' wealth of Canadian Indian material, and in making the public more aware of the history and accomplishments of the Indians.

Adventures in old-time lighting

by Loris S. Russell
Chief Biologist, Royal Ontario Museum

How did a palaeontologist come to be involved in the study of old-time lighting? Well, back in 1958, when I was Director of the Natural History Branch of the National Museum of Canada, I was asked to assume the additional duties of Acting Director, Human History Branch. A new National Museum building was planned for the Canadian Centenary in 1967. Its displays would illustrate the way of life of Canadians in the past, particularly in the middle years of the 19th century. With

generous financial support we assembled within a few years the largest and most important collection of objects illustrating the technologies, trades, crafts, and general way of life of our predecessors. It encompassed all the domestic and industrial crafts, transportation, communication, entertainment, costumes—everything that could illustrate bygone days in Canada, from the Avon Peninsula to Vancouver Island.

Unfortunately the plans for a new National Museum building, oriented toward social history and technology, were eventually dropped. In the meantime, I had reached two conclusions regarding the role of the history museum. The first was that its greatest opportunities are in the fields of social and technological history. Military and political events are most easily dealt with in books; objects related to society and technology are more readily obtained, easier to interpret, and fit better into the design of a meaningful exhibit. Moreover, the success of such period reconstructions as Upper Canada Village at Morrisburg, Ontario, and Black Creek Pioneer Village on the outskirts of Toronto is most significant. How often have visitors to these restorations said, "If history had been taught like this when I was in school, I would have enjoyed it!"

My second conclusion was that collections of this sort provide an opportunity and a responsibility for scholarly research. To illustrate how such investigations might be pursued, I undertook a detailed study of the lighting devices in the national collection, taking hundreds of photographs of specimens, and searching for their significance in old journals, newspapers, and patents.

Since November 1963, when I returned to

Grandfather's parlour—1862—reconstructed for the Central Canada Exhibition, Ottawa, in 1962. Reproduction wallpaper in authentic Victorian pattern; 1850s stove, and kerosene lamp

the ROM and my proper profession, I have continued the study of early lighting as a private project, building up a collection to supplement that of the National Museum. A timely grant from the Canadian Centennial Commission enabled me to study other collections in Canada and abroad, and to examine records in national and provincial archives. The result has been a book, a little late as a centennial project, that tries to tell the story of how Canadians in the 19th century illuminated their homes and how the means for this illumination were developed and manufactured. It is an interim report, for much remains to be learned, especially about the social impact of each new means of lighting.

In 1962 I prepared for Ottawa's Central Canada Exhibition a reconstruction of a parlour as it might have been in a middle-class Canadian home of 1862. It was great fun selecting the furniture and the wallpaper, but the accessories were the most satisfying. For instance, there was a Currier and Ives lithograph of Queen Victoria in the 1850s. How I wished for a corresponding portrait of "Dear Albert" to drape in black, recalling his untimely death in 1861. On the inevitable "what-not" was a statuette of Uncle Tom and Eva, a reminder that the American Civil War was in its second year and that not all Canadians were southern sympathizers.

Naturally I wanted the lamp to be just right. By 1862 kerosene was well established as the popular lamp fuel, so it would be a kerosene lamp, but it had to be one especially characteristic of the early 1860s. I found what I wanted with my friends Mr. and Mrs. C. L. Graham of Napanee. It had the square marble base in two steps with ornamentation, the fluted brass stem, and the "turnip"-shaped glass font. The latter had overlay or "cased" decoration, made by coating the clear-glass vessel with an external layer of cranberry-red glass and then cutting a design through the red to expose the clear glass beneath. It was a beautiful lamp. I fitted it with a burner and what seemed to be the proper chimney and shade, and gave it a place of honour in my parlour. Not until several years later, when I was making a really serious study of kerosene burners, did I realize that the burner I had so casually selected had not been invented until 1873!

Not surprisingly, no one had noticed my mistake. I doubt that anyone at that time in the whole of Canada knew that the familiar kerosene burner, with its four prongs to hold the chimney, was perfected by L. J. Atwood of Waterbury, Connecticut, eleven years after the supposed date of my reconstruction.

Many collectors of antiques must have had the experience of searching for a long time for something special, eventually finding it, and then suddenly seeing it everywhere. Such was my quest for the "Vienna burner." Abraham Gesner, who invented kerosene, recorded that the first burner introduced for his new lamp fuel was brought from Austria. It was called the Vienna burner. But nobody seemed to have left a description or picture of it, and even other references to it were few and casual. I

The elusive Vienna burner

A handsome ornament for any parlour, the solar lamp burned either whale oil or lard

presented my problem to Dr. Josef Nagler, Director of the Technical Museum of Industry and Crafts in Vienna. He promptly sent me a roll of film depicting the catalogue of the firm of R. Ditmars, Gebrüder Brünner. There, in the place of honour in the upper left corner of a whole page of burners, was the "Wiener Flachbrenner."

Armed with this knowledge, I attended an antique show in Toronto soon afterwards. Mr. Godfrey Moore, one of the exhibitors, asked me to look at a recently acquired lamp which was unlike the usual kerosene lamp. It had an attractive ornamental iron base and a peg-type font of pink pressed glass. But I had eyes only for the burner; it matched the picture from Vienna exactly, and on the thumb wheel were the words, "DITMARS MADE IN AUSTRIA."

"Oh," said Mr. Moore, "I have another burner like that at home. I'll bring it in tomorrow."

The second one was a little larger, but it supplied the clincher: "WIENER FLACHBRENNER" on the thumb wheel. Only a few months went by before I had acquired additional examples. I am sure there are more, still unrecognized, in Canadian and American collections.

The Ford Museum in Dearborn, Michigan, has a marvellous collection of lighting devices, most of it on display, and I was given full liberty to study and photograph the specimens. Some were even taken out of their cases so I could have a better look. So it was petty of me to feel resentful when the curator declined to let me examine the "barrels-full" of kerosene burners said to be in storage. He said they were being kept for study by one of the Museum staff.

Not long afterwards one of my antique hunts took me to East Aurora, a pleasant little town southeast of Buffalo, N.Y., with 18 or more antique dealers among its residents. Mr. and Mrs. Paul Shelley specialize in old lamps, many of which they refurbish and convert to function as electric lights. But Mr. Shelley is unusual; he does not throw away the discarded burners. Feeling a little like a prospector who has found

Argand lamp, invented in 1783, burned whale oil. This model shows refinements of 1819

the mother lode, I went through dozens of cartons, boxes and fruit baskets jammed with strange burners. After I had brought my selection home and sorted it, I went back for more. With this haul and the various examples picked up elsewhere I was able to include in my book a definitive account of the development of kerosene burners in North America. The Ford Museum could keep its barrels of burners.

Advertisements in old-time newspapers are rich sources of information on the things that were used in their day. In the Toronto *Globe* for October 5, 1847, solar lamps were offered for sale. The solar lamp had a burner designed to produce a high, narrow flame. Originally intended to burn whale oil, it worked very well with lard as fuel. In its day it was an elegant ornament to the parlour. There are a few solar lamps extant in Canada, but all I have seen have been converted to take a kerosene burner, a transformation like the current rush to make kerosene lamps into electric lights. In fact, a very handsome solar lamp in my collection was long ago altered to burn kerosene, and the kerosene burner was subsequently mutilated to make room for an electric light socket.

One November, as we were driving west to attend a convention in Kansas, we detoured through St. Joseph, Missouri, which was once the eastern terminus of the pony express. The museum there was closed for the season, so we decided to visit the local antique shops. Mrs. Marie Burton, one of the local dealers, displays many of her fine pieces in her spacious home. There to welcome us just inside the door was a handsome solar lamp, complete with original burner, shade, and ring of prism-shaped glass pendants. It was from a home in Kansas City, a frontier town in the 1840s and '50s, but someone there had had the means and the inclination to light his parlour with one of those fancy lamps from Philadelphia. Now it is in Toronto, a proxy for those solar lamps that came to Canada in the mid-19th century and which have disappeared or suffered a change long since.

Before the days of the solar and other lard-burning lamps the almost universal lamp fuel in

The Rumford lamp

North America was whale oil. Some whale-oil lamps were simple, others complicated and ornamental. Most of the latter used the Argand principle of tubular wick and central draft. Ami Argand was a Swiss scientist working in France when, in 1783, he invented the lamp named after him. He mounted a hose-shaped wick between two brass tubes and attached the device to an oil reservoir, so that the fuel could reach the bottom of the wick and air could come up the centre tube to help feed the circular flame. Argand was also the first to put a glass chimney on a lamp.

Few Argand lamps are preserved in Canadian collections. They should be in the Maritime Provinces, if anywhere. So one summer I visited the New Brunswick Museum in Saint John to see its collection of lighting devices. The collection had recently been removed from display and was now in a top-floor storage room, but Mr. Lloyd Muir, the then Curator of History, kindly undertook to bring it out for my inspection. The specimens were crammed into cartons in cupboards and on shelves. Many were run-of-the-mill, but suddenly I recognized an Argand lamp. It was sophisticated in design,

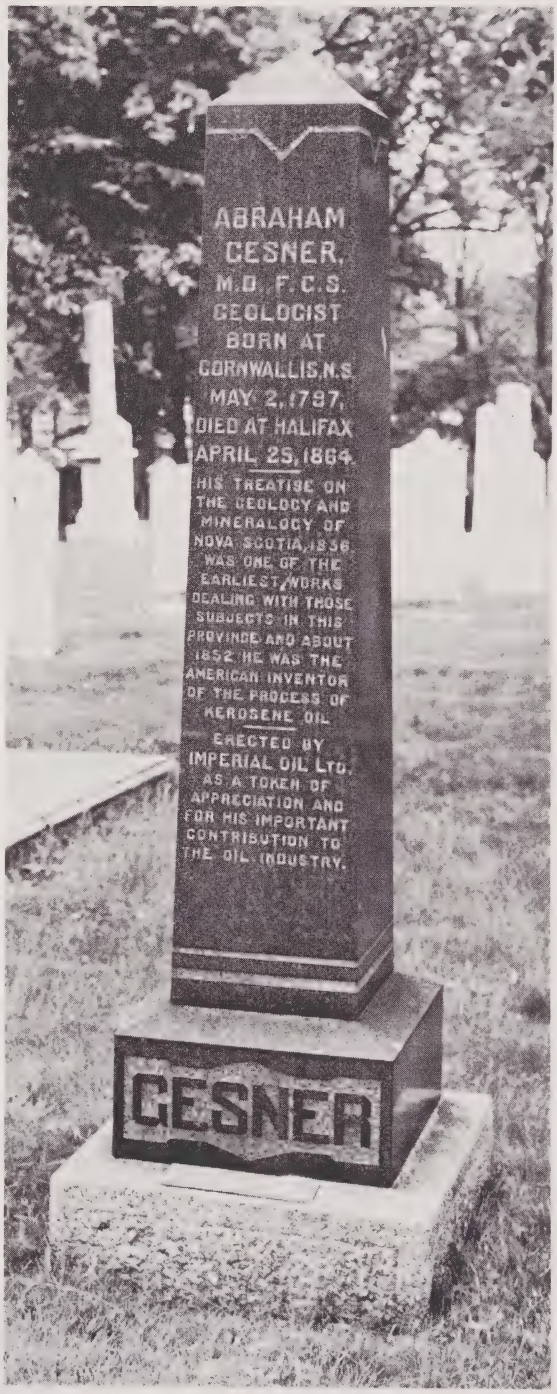
Former home of Dr. Abraham Gesner, in the Annapolis Valley, where kerosene was first distilled from coal, in the mid-1840s

with a device in the burner to permit the wick to be raised or lowered by turning the drip catcher at the bottom. This refinement was invented in 1819, so that the lamp was somewhat later in date, probably about 1830. Still, it was the first real Argand lamp I had seen from a Canadian source, and I have yet to find another.

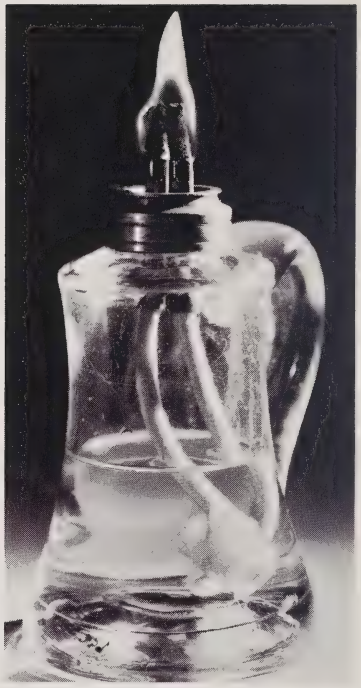
But the biggest surprise was to come. Another lamp, vaguely like the Argand, had appeared from the packing. There could be no mistaking a Rumford lamp. It had the candle-shaped font, the flat wick-holder, and the peculiar mechanism for racking the wick up and down. There are probably not more than a dozen Rumford lamps in all of North America, and certainly no other in Canada. The inventor, Sir Benjamin Thompson, Count Rumford, was a famous American expatriate of the late 18th century. Undersecretary of State for England, Prime Minister of Bavaria, he made many scientific discoveries and inventions, and helped found the Royal Institution in London. The lamp that bears his name was just one of the many inventions that he made available freely to the world.

These two venerable lamps had come from the estate of the late Mary K. Odell, who was descended on her father's side from Jonathan Odel, first Provincial Secretary of New Brunswick, and on her mother's side from Jonathan Bliss, first Attorney-General of that province. Almost certainly the Rumford lamp helped to light the home of one or the other of these distinguished Loyalists, and the Argand lamp was used by the second generation. Although they were made in Europe, these lamps are as genuine Canadiana as one could hope to get.

I said earlier that Abraham Gesner invented kerosene. Gesner was a Nova Scotian physician turned geologist and inventor. He gave the first public demonstration of his new fuel in Charlottetown, P.E.I., in 1846, but he must have made his original experiments at his home in Nova Scotia. The same year that I saw the lamps in Saint John I was fossil-hunting in the Annapolis Valley, and I thought it would be a nice thing to visit the presumed site of this great discovery. History-minded as they are in



Gesner's grave, Camp Hill Cemetery, Halifax, Nova Scotia



Glass hand lamp, with screw-in burner, burned whale oil

"Cup-and-saucer" hand lamp, probably of the 1870s

Nova Scotia, nobody seemed to know where the old Gesner farm was. All that the published biographies of Gesner could say was that it was in Cornwallis Township.

Old petitions in the Nova Scotia Archives in Halifax gave me some clues, and in the Registry of Deeds in Kentville I found beautifully preserved documents setting forth the boundaries of the Gesner farm and recording the various land transactions between Abraham Gesner and his father Henry. But they still did not indicate precisely which modern property was the old Gesner farm. The Registrar referred me to Mr. Durrell Sutton of Port William, who showed me Henry Gesner's grave, and passed me on to Mr. Ernest Eaton of Upper Canard. With their help I was able to match the old records and maps with the actual ground, and establish definitely that the former dwelling of Henry Gesner and his son Dr. Abraham Gesner is the second house south of Chipman Corner, which is about three miles northeast of Kentville. This identification was confirmed by Miss Muriel Murray of Chipman Corner, whose grandfather Samuel Chipman's first wife was the sister of Abraham Gesner. Subsequently Mr. Eaton found an oral tradition that the doctor had carried on distillation experiments at this farm.

So here, on a quiet side-road in the lovely Annapolis Valley, only a few miles from tourist-filled highways but unvisited and unmarked, is the place where the great modern petroleum refining industry began, 122 years ago. What was that again about the prophet in his own country?

The study of Canadian social history is an engrossing avocation for Dr. Loris S. Russell, the ROM's Chief Biologist. This article and "A Heritage of Light," a study of lamps and lighting in early Canada recently published by the U. of T. Press, are products of one aspect of his pastime. Since 1922 he also has been a keen amateur radio operator. Dr. Russell was born in Brooklyn, New York; moved to Calgary with his parents at the age of four; received his B.Sc. from the University of Alberta, and his M.A. and Ph.D. from Princeton. In 1937 he was appointed Assistant Professor of Palaeontology at the University of Toronto and Assistant Director of the Royal Ontario Museum of Palaeontology. In 1950 he left the ROM to become Chief Zoologist at the National Museum in Ottawa. Later he was named Director of the Natural History Branch and Acting Director of the Human History Branch at that Museum. Dr. Russell returned to the ROM in 1963 as head of the Life Sciences Division and, when the divisions were abolished, he became Chief Biologist.

Pennsylvania and Ontario earthenwares: a comparative view

by D. B. Webster

Curator,
Canadiana Department

Pottery-making in North America reached its height as a cultural art in the 18th century in the best work of German-American craftsmen in Pennsylvania. Even utilitarian wares were produced with considerable attention to their decorative appeal. While vessel shapes were simple, they often were colourfully glazed, and sometimes further decorated by incising or tracing patterns in slips (fine white, brown, or black clays) of contrasting colours.

The ultimate examples of this pottery, now rare, were decorated very much in

Typical Ontario earthenware types and forms, left to right: York Shilling crock, green and speckled orange gaze; Covered preserve jar, lead glaze over brown slip; Cream crock, dark metallic green glaze; Covered jar, mottled light olive-green glaze; Large jug, orange-brown glaze; Handled bottle, late form, orange-brown glaze with brown specks

the old world German tradition, particularly by scraffito (incising through unfired glaze) and elaborate slip-decorating of chargers, plates and jars. Favourite designs included tulips, hearts, birds, pinwheel flowers, and other circular and geometric motifs.

By the early 19th century, however, the most highly artistic forms of German-American pottery had largely disappeared although the more basic pottery retained its colourful character and the essence, if not the substance, of earlier grandeur.

Increasing movement and travel of people during the 19th century blurred the ethnic qualities of Germanic pottery. Earthenware generally came to be less craft- or craftsman-oriented and became a more purely commercial commodity. The tendency toward fully North American universality of form and function was an inevitable outgrowth of the industrial age, and individual craftsmen were unavoidably caught up in the effects of developing technology. New ceramic shapes, types, and forms of basic utensils and containers appeared almost simultaneously throughout inhabited North America.

American pottery-making had very clearly entered a period of decline as an individual skill and art, and was becoming more of an industry. Both the highly artistic and the highly ethnic ceramic forms were first diluted and finally destroyed. The craft of the country potter was ultimately doomed.

In this atmosphere of artistic decline and competition with technology, potters trained in the Germanic tradition emigrated to settle all across southern and western Ontario after 1800 and well into the 19th century. These craftsmen produced a great portion of what we now consider Ontario country pottery, and through the second and third generations exerted a strong influence on rural earthenwares as long as the craft itself survived.

The ceramics of Ontario during the first half of the 19th century consisted entirely of rather basic earthenwares produced in small rural and village potteries. True pottery factories, with sufficient technological sophistication to manufacture stoneware or cast and moulded wares, developed in Canada only after 1850. All of the earlier potteries, and most of the small rural operations of the later 19th century, were one-man or family businesses providing purely utilitarian pottery to a geographically immediate market. They used local clays, hand-made and largely wooden equipment, and manual labour and personal skills for all pottery-forming operations. Few of these small potteries were prolific, or sources of wealth for their owners.

The products of the early rural Ontario potteries reflected the origin and training of the individual potters who hand-fashioned each piece. The dominant salt-glazed stoneware industry, with which few earthenware potters had ever actually had direct contact, nevertheless influenced pottery types and shapes. Earthen pottery also reflected, perhaps to a lesser extent, the direct environment of both the potter and his local market.

In both Ontario and Pennsylvania, 19th-century earthenwares were produced by the same methods, in essentially the same shapes and forms, and glazed and decorated with the same materials. The earlier artistry, the elaborate scraffito incising and imposing slipware of the 18th century, was gone forever, and there is no evidence that such work was ever produced in Ontario. Ontario earthenwares are therefore generically similar to those of Pennsylvania after 1830 or 1840. Obvious divergencies between the two are probably the result of environmental and economic conditions rather than of traditions or of people.

In the matter of glazing, for example, the economic difference between semi-frontier Ontario and comfortably-settled Pennsylvania be-

comes apparent. Pennsylvania earthenwares of the mid-19th century were typically finished with a transparent glaze having lead oxide as the metallic ingredient. Commonly, however, this pottery was minimally but still separately decorated with contrasting lines or blots of slip under the glaze, a vestige of the earlier elaborate decorative forms.

Ontario earthenwares were far less commonly coated with transparent lead oxide glaze, without other colourants. Usually pottery was dipped in a basic lead glaze containing other colouring oxides, which after firing produced translucent or opaque colours other than the reds of the clays, and often mottled combinations of two or three colours (depending on the glazing technique). The usual metallic additives were iron for browns, manganese for black, cobalt for blue, antimony for yellow, copper for green, and tin (or white slip in a lead glaze) for white. Only rarely was pottery separately hand-decorated with manually applied contrasting decorations.

Total colouring of wares by dipping them in glazes mixed in large batches, and the general elimination of separate decoration, was certainly faster and undoubtedly less expensive than Pennsylvania slip-decorating. Many of the basic utilitarian Ontario earthenwares are extremely rough: unglazed slip-clay outside and a slip or glazed coating inside. Mid-19th-century Pennsylvania wares of this type are rarely encountered.

Many differences of shape and form were influenced by the container wares produced by the stoneware industry, dominant (and mechanized) at the time most Ontario earthenware potteries were established. No Ontario pottery has yet been confirmed as operating before 1810; probably fewer than a dozen existed before 1850. The period of greatest growth seems to have been from 1850 to 1875, and the greatest number of potteries was operating in the 1870s and 1880s. By this time the very vocation of the rural earthenware potter was dying out, or already dead, in all but the most isolated areas of the United States.

Established comparatively late in the century, Ontario potteries and immigrant potters usually began producing the latest of contemporary forms current in the United States, particularly in Pennsylvania. Once having begun fabrication

18th Century Pennsylvania scraffito and slip decoration.
Philadelphia Museum of Art

left: Charger, dated 1769, with inscription and main design in yellow slip and tulip centres in green. Lead overglaze

right: Jar c. *1800, with yellow slip floral decoration under transparent overglaze*

of these forms, however, the Ontario potteries seemed not to change. They continued making the same wares in some cases till well after 1900, ignoring or never becoming aware of subsequent forms.

Consider, for example, slip-decorated plates. The common 18th- and earlier 19th-century earthenware plate of the Northeastern United States was a pressed concave disc with sides rounding up gradually to the rim. The inside surface was most typically decorated with lines, or occasionally patterns or motifs, of white slip. Although the concave plates were produced as late as the 1870s, in the 1850s they were gradually superseded by a flat-based type with sides angled to the base—in larger versions, a pie plate. This latter type was commonly decorated with superficially brushed or sponged lines or spots of brown rather than white slip clay; often it was left plain.

There is no evidence that the earlier concave plate was ever made in Ontario, however late it remained in overlapping production in the United States. Ontario potteries produced the flat-based form, occasionally with brown slip decorations, until nearly the 20th century, long after its final disappearance in Pennsylvania.

The most common type of storage jug in Ontario was cylindrical with straight sides and convex shoulders rounding to the neck, a shape actually initiated by salt-glazed stoneware manufacturers about 1850. This later shape is rather unusual in Pennsylvania earthenware, where an earlier bulbous-bodied, narrow-based jug is more typical. The reason was simply that by the time most Ontario potteries began operation, stoneware was rapidly replacing large earthenware vessels in Pennsylvania.

The typical Ontario open earthenware crock has an earlier rounded or flattened-ogee profile, which was current among United States earthenware potters and stoneware manufacturers into the 1860s. Initiated as the standard Ontario shape before the stoneware container industry introduced the more easily produced plain cylindrical crock, the rounded and ogee type survived in Ontario long after its abandonment elsewhere. Another usual Ontario type,

Covered bowl, yellow and green slip under transparent overglaze, c. *1800–1820*

Covered bowl, c. *1820–1850, with both stamped and hand-formed applied decorations, mottled transparent glaze*

19th Century Pennsylvania wares Metropolitan Museum of Art

the trapezoidal-profiled "six-penny" or "York shilling" crock, was most uncommon in Pennsylvania.

Perhaps the best insights into the pottery of Ontario and Pennsylvania come from examination of individual artistic endeavours. The Germanic potters often expressed themselves and their culture in clay, a medium many of them obviously loved, far beyond the confines of daily bread-and-butter manufactures. Certainly most of them periodically had special customer orders for elaborate work. Other pieces, however, were made simply for personal enjoyment —perhaps as gifts, or as tests of skill and materials, possibly as pure experimentation, or even for no real reason at all. These individual special pieces most clearly represented the aesthetic side of the earthenware potters' craft, and of the ever-diminishing Germanic tradition.

Such personal and unique products fall generally into three groups. Most unusual, perhaps, were whimseys—toys, miniatures, or decorative pieces—often painstakingly made, but with minimal utilitarian value. A larger group, in terms of quantities encountered today, is composed of practical but otherwise unusual small utensils—covered bowls or jars, cups, mugs, vases, dishes, and so on. Most are quite functional but have an unusual decorative character, whether of shape, glazing, incising or even applied clay elaborations. Some of these pieces were undoubtedly selected from production wares, but frequently the forms were as special as the decorations. The great scraffito- and slip-decorated wares of the 18th and early 19th centuries generally fall into this category. Third among the groups of unique endeavours are the standard production pieces given uncommon decorative treatment. Most examples are noteworthy only for their adornment, not for fine or unusual craftsmanship. Unique and individual earthenware pieces appear to have been fairly common products of Pennsylvania-German potteries, and of Germanic potters in other areas of the United States, even after 1850. Though degenerating in later years, unique pieces of pottery disappeared only with the final decline of the commercial earthenware potter's craft. Many examples, particularly early ones, are exceptionally precise in formation and craftsmanship. Many others are heavy and technically mediocre, but elaborately ornamented with a strong Germanic flavour. A surprising number were copies or interpretations of the English whitewares then being imported in vast quantities.

In Ontario, specially made earthenwares in any form seem to have been produced only infrequently, and are extremely rare today. Known specific examples of such work are very

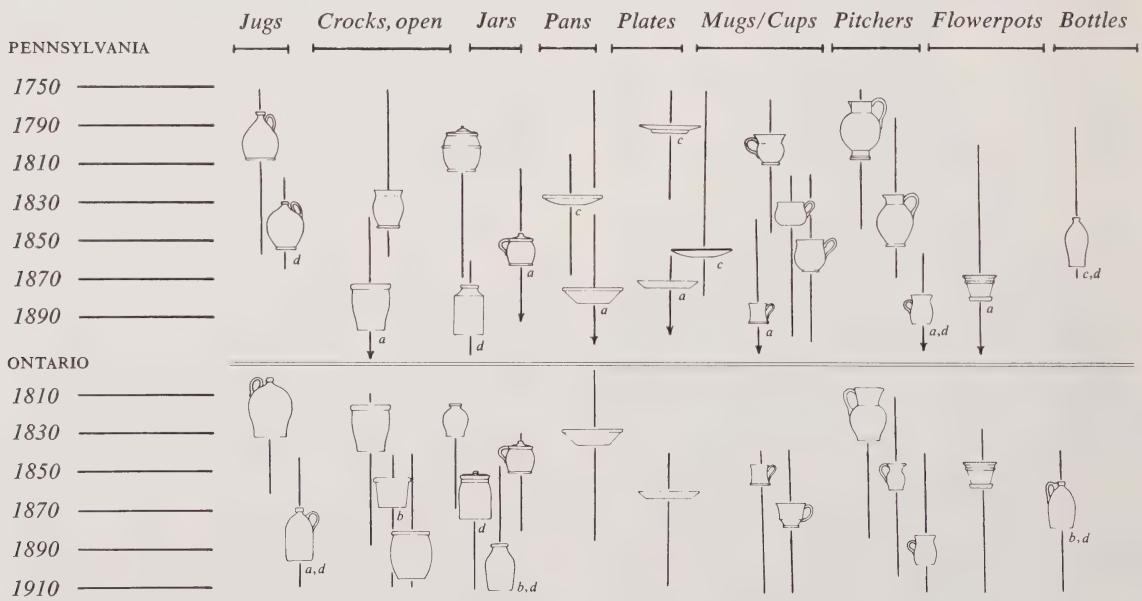
Ontario and Pennsylvania plates
Left: Partially reconstructed plates, with brown slip decoration under transparent glaze, from excavations at the William Eby pottery (1857–99), Conestogo, Ontario
Left centre: Plates of William Eby, c. 1875–90, and typical of the Ontario form. Eby's characteristic Z mark in the bottom of each
Right: Pennsylvania plates of the pressed disc type, decorated with yellow and brown slip under transparent glaze. These were the universal Pennsylvania and New England form in the 18th and 19th centuries, but production is not known in Ontario

like the later Pennsylvania varieties—the toys and miniatures, the special utensils, and the decorated container wares. Qualitatively, the Ontario examples are fully comparable with Pennsylvania pieces of the same period and, as in the production pottery and container wares, there are no basic generic differences.

Though considerably fewer 19th-century potteries operated in Ontario than in Pennsylvania, granting an equal survival rate we can only assume a lower incidence of unique work in Ontario. The explanation for this less common occurrence of individual artistic work in Ontario, as compared to Pennsylvania, may be found in the same factors—environment and economy—that created the divergence in quantity production wares. Also to be considered is the ever-accelerating dilution of the Germanic ethno-artistic tradition, an inescapable result of increasing immigration and rapid migration of people, the great North American melting pot at full heat. An equally important and coincident influence was the growing dominance of technology over craftsmanship.

The commercial earthenware potter in all areas was the victim of the stream of North American cultural history. The great majority of Ontario potteries began operation only after 1840, producing wares of a natural substance, rough earthen clay, already obsolescent as a ceramic material, and largely by hand operations in a mechanical age. The craft as a whole in North America was in steep decline; in Ontario it could survive and individual operations could even prosper as long, and only as long, as its markets were isolated agricultural communities with relatively primitive economies. The Ontario earthenware potters, as craftsmen and as artists, were no more and no less well-trained, skilled, or personally motivated than their colleagues in Pennsylvania fifty or a hundred years earlier. Their problem was that the cards had been called before they got into the game.

Basic Red Earthenware Types and Forms, Pennsylvania and Ontario



Profiles are representative of types, not specific pieces.

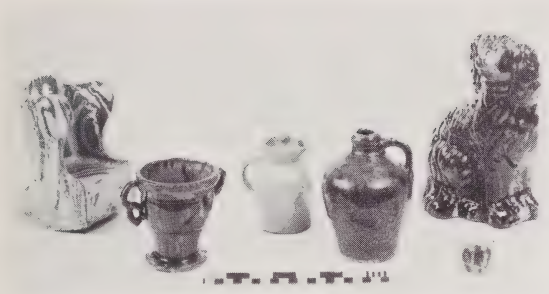
Form chronology is approximate

a—Identical or analogous form (Pa. & Ont.), or universal form.

b—Form rare or unknown in Pennsylvania.

c—Form rare or unknown in Ontario.

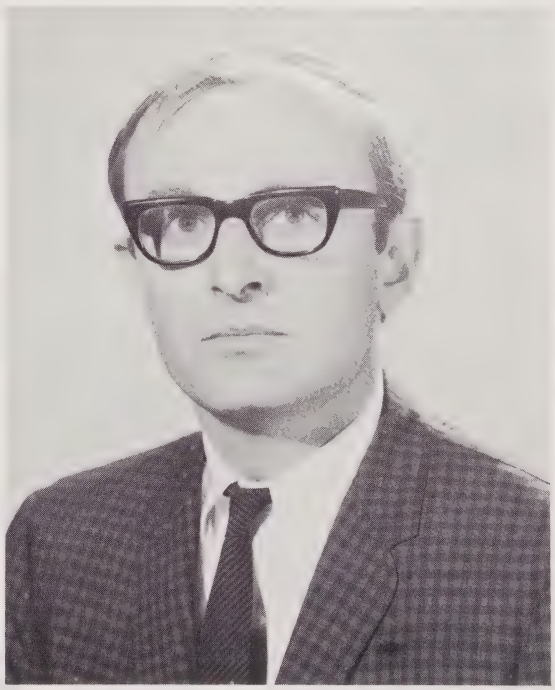
d—Form also common as salt-glazed stoneware.



Ontario red earthenware whimseys and miniatures
Left to right: Rocking chair constructed of flat sheets of clay cut to pattern, with a transparent lead glaze over streaked yellow slip; Vase with applied base and handles, with lead glaze over mottled brown; Covered pitcher, yellow-slip coated; Jug with mottled olive-green and speckled orange glaze; Moulded dog coin bank, with lead glaze over mottled brown; Cream crock (Eby pottery excavations) with lead glaze over brown streaks

Unusual Ontario pieces
Left: Two-gallon jug with copper-green decoration over a white-buff slip, and transparent overglaze. Though Ontario earthenware is rarely marked, this piece, c. *1870, is stamped JOSEPH WAGNER / BERLIN POTTERY (Kitchener, Ont.)*
Centre: Covered jar with moulded and applied ornamentation, finished with brown slip and transparent overglaze. Central Ontario, c. *1850–70*
Right: Ewer and basin, with brown slip decoration over white glaze. Western Ontario, pottery unknown, c. *1875–80*

Donald Blake Webster, author of the article on Pennsylvania and Ontario earthenware, joined the ROM as Curator of the Canadiana Department in 1966. He holds cross-appointments to the University of Toronto as a special lecturer in the Faculty of Arts and Sciences and in the School of Graduate Studies. Born at Rochester, New York, Mr. Webster received his B.A. from the University of Maine and his M.A. from the University of Rhode Island. Prior to joining the ROM, he was Curator of History and Art at the Roberson Memorial Centre, Binghamton, New York. In 1967 he was in charge of a difficult winter salvage-excavation at Brantford, Ontario, the results of which were published as Occasional Paper 13 in the ROM Art and Archaeology series under the title, "The Brantford Pottery." In the summer of 1968, he was responsible for excavation of the 19th century Van Norman Iron Foundry at Normandale, Ontario. Mr. Webster has written numerous articles for newspapers, magazines and journals.



Pieces of accidentally smashed Fu Dog. Every sliver was collected

from restoration to replicas

by Bernard Leech

Assistant Curator-in-Charge,
Conservation Department

CRASH! The thud of a heavy object hitting the floor, accompanied by a shattering sound, echoed through the high-ceilinged Far Eastern Galleries.

When guards reached the scene they discovered a minor disaster. A visitor, while attempting to photograph a large Buddha, accidentally had backed into a substantial wooden pedestal. It had toppled and the ceramic Ming Dynasty Fu Dog that had stood on the pedestal was scattered on the floor in hundreds of pieces.

The visitor was in tears. Summoned by guards, the Curator of the Far Eastern Department took one look at the wreckage and called the people who cope with such emergencies—the Conservation Department.

Every sliver of the Fu Dog was carefully collected under the supervision of Conservators and hustled down to the basement Conservation laboratory. With delicate skill and infinite patience, the Department's specialists were able to reassemble the broken Dog so that once more he is ready for proud display. Only the most knowledgeable eye would know that he had been a patient in the Conservation casualty ward.

Proudly fierce Fu Dog, fully restored

Fortunately, considering the almost one million visitors who annually stream into the ROM, the accidental damage rate is not high. But the Conservation Department always is prepared for emergencies while it goes about its regular tasks of repairing, restoring, consolidating—and, occasionally, duplicating—the hundreds of thousands of valuable and often irreplaceable objects in the art and archaeology collections of the Museum. Its problems can be simple or endlessly complicated. Some tasks take only an hour; others, such as the treatment of bronze disease in objects, can take years of therapeutic baths.

Every art object or artifact brought to the ROM arrives at the Conservation Department. There a condition report is prepared: is it damaged, must steps be taken to protect it against deterioration, is there doubt about its authenticity. These are some of the questions that may be answered.

Ensuring that the condition of an object is maintained, and if possible improved, are the most important aspects of the Department's activities. Paintings may begin to crack, metals corrode, prints may become brittle and discoloured, furniture dry out so that joints pull loose. Because the ROM has no control over either temperature or humidity, the Conservators constantly are on guard against the effects of temperature extremes and too much or too little moisture in the air.

Sometimes what appears to be an ordinary job leads to the unexpected. Recently a painting by the 19th century American artist, George Catlin, was brought to Conservation for routine cleaning and restoration prior to an Exhibition.

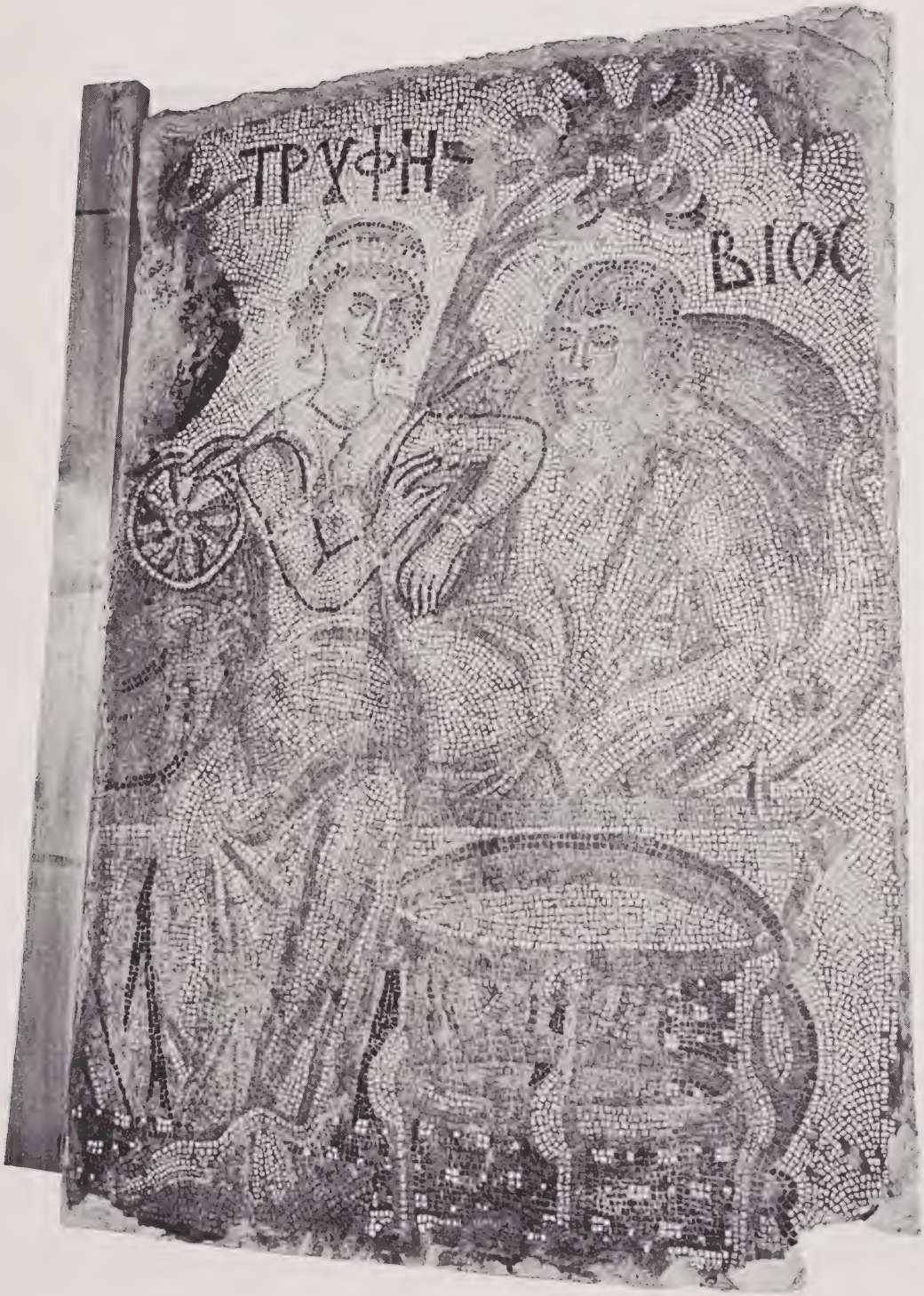
Close examination under a microscope disclosed, however, that the painting had been improperly restored several years ago. To cover a worn patch someone other than the artist had painted in an extra tree. With the care of a surgeon, a Conservator removed the offending tree, and repainted the worn spot to match the original background.

Another challenge to the Conservator's skill was a Roman mosaic about 1,600 years old. At some point in its travels the mosaic had been mounted in a poor grade of reinforced concrete, three to four inches thick. The mosaic itself had a corner broken away and it needed cleaning. Obviously it should be remounted in a lighter, stronger material but the problem was to keep the mosaic, composed of hundreds of small, individual coloured tiles, from falling apart while the concrete was being chipped away.

To the mosaic surface, Mulberry tissue was applied and coated with water-soluble waxes, then further reinforced with layers of linen and

Ancient Roman mosaic. Note broken corner

Back of mosaic, showing two reinforcing rods left in place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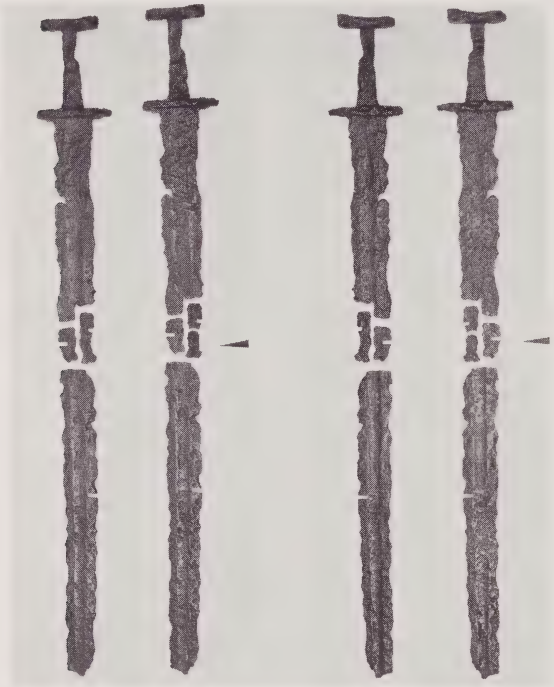
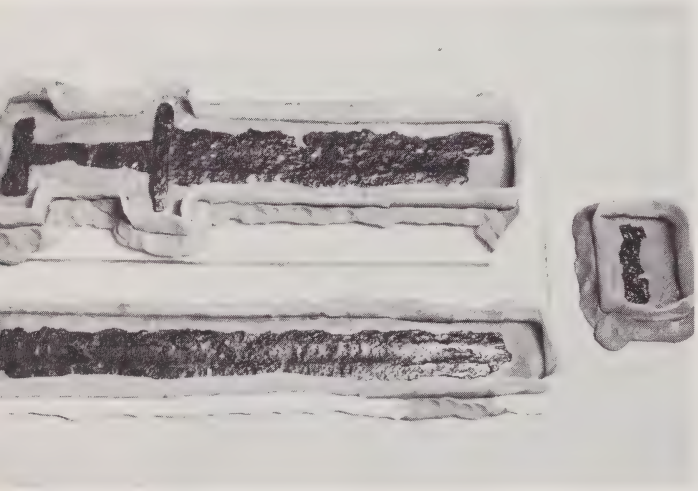
Beardmore swords, original and replica, showing both sides. Original is at right in each photo



Filled moulds for one side of Beardmore sword



more wax. With the surface protected, the mosaic was turned over and placed on a bed of foam rubber while the protracted job began of delicately chipping off the concrete.

In all, three inches of concrete and five reinforcing rods were removed from the back of the mosaic. Two rods were left in place because they were so close to the fragile mosaic that to remove them appeared dangerous.

For the new mounting, it was decided to use fibre glass reinforced polyester resin. The back of the mosaic first was coated with a solution of polyvinyl acetate and saturated with the polyester resin which also was injected into any cracks. Then layers of fibre glass and resin were applied and a filled polyester resin used to finish the backing which, after a period of curing, was sanded smooth.

Attention next returned to the face of the mosaic. The protective layers of wax, paper and linen were removed with water, the surface cleaned and some small areas retouched. The broken lower left corner was re-attached, using brass dowels and epoxy adhesive. The final step was to apply a protective coating of water-soluble wax to the mosaic and it was ready for exhibition, firmly set in a stronger, more durable mounting.

Variety is the essence of Conservation Department projects but among the most fascinating is the reproduction of museum objects. Such reproductions are not intended to mislead visitors but to serve some specific purpose. One such project was to make reproductions of the Beardmore relics. An American museum wished to borrow the relics for a year-long exhibition and agreed to finance the production of exact replicas which it could display permanently after the originals were returned to the ROM.

The relics have been a controversial topic ever since they were acquired by the ROM in 1936. A detailed description of them and of the debate surrounding them was published by the ROM in 1966 (The Beardmore Relics: Hoax or History, by A. D. Tushingham. ROM Sales Desk, 40 cents).

The relics consist of a sword in two main

pieces, an axe head, and what may be a shield handle or wrangle. All are made of iron and experts say they doubtless were produced by Norsemen sometime between 850 and 1025 A.D. The long debate has not been so much over their authenticity as over where they purportedly were found—near the town of Beardmore in northwestern Ontario. Did ancient Norsemen actually penetrate that far into North America a thousand years ago, or were the relics "planted" there in recent times? The debate still rages, but the problem of copies of the relics was something the Conservation Department could solve.

Each main piece of the Beardmore sword is approximately 15 inches long, varying in width from 3¼ inches at the hilt to 1½ inches at the blade and in thickness from ¾ inches at the hilt to ⅛ inch or less in the blade.

To copy the sword, each side of the hilt was impressed to half its thickness into a strip of beeswax and a shallow tray was fashioned by raising the edges with more beeswax. Into this tray, after the hilt was removed, was poured a catalysed solution of "silicone rubber." The rubber hardens after a few hours and may be removed in 24 hours or less. The silicone rubber mould was prepared for electrotyping by coating it with graphite, inserting copper wires for electrical contacts, and reinforcing it with plaster of paris. This prepared mould was lowered into a copper sulphate solution. As electrical current was passed through the bath and the mould, a layer of copper 1/64 inch thick was deposited on the mould, faithfully reproducing its surface. The electrotype halves of the upper part of the sword then were filled with solder, excess copper was trimmed off, and the two halves joined with copper-filled epoxy adhesive. During the filling of the two halves, weight changes were recorded so that the weight of the replica could be adjusted to match the original.

After repeating the copper electrotype process with other parts of the sword, the copper replica was electroplated with a thin film of silver to give a closer approximation to a clean iron surface. To match the rusty appearance of

Original Maya jade plaque. Conservation was asked to make replicas for study

Original plaque at right, with three replicas. Only in photographs is colour difference obvious between original and replicas

the original, the replica was dipped in solutions of potassium sulphide and potassium permanganate which converted the silver film to a colour similar to the original iron weapon. The replica was completed by sealing all surfaces with an acrylic lacquer.

The photograph shows both the original and the replica. However, even though the replicas do not bear the legend, "made at the ROM," a careful examination and, if necessary, a magnet, will distinguish the reproduction from the original.

Each order for replicas poses its own problems. For instance there was a jade plaque found at the Maya civilization site, Altun Ha, by Dr. David Pendergast, Field Director of the ROM British Honduras expedition. Exhibiting many glyphs, or inscriptions, this important piece was on indefinite loan from the British Honduras government which granted permission for copies to be made for study by scholars in different centres.

Making two half moulds of the plaque from silicone rubber was relatively easy. What was difficult was capturing the translucency, randomness and depth of the jade colour.

After many experiments to match colours, each piece was cast in 14 individual layers. Each layer had to be coloured separately to compensate for the apparent change in colour in the preceding layer. The casting resin was a clear polyester and because of the difficulties involved the production of three replicas of the jade plaque took a total of 38 working days. The photo shows the original and the replicas. Differences in colour revealed by the photograph are not as apparent when the original and the reproductions actually are seen by a casual observer.

Challenge to jig-saw fans. Fragments of Minai bowl, circa 1200 A.D.

Minai bowl, temporarily reconstructed with tape. Missing are pieces not of same bowl or of later manufacture

Bernard Leech, Assistant Curator-in-Charge of the ROM's Conservation Department, was born in Wolverhampton, England. After apprenticeship as a metallurgist and studies in general metallurgy and chemistry he spent several years with major industrial plants in England before coming to Canada and joining the ROM in 1967. He is an associate member of the International Institute for Conservation of Historic and Artistic Works (I.C.C.). His activities in the I.C.C. and his comprehensive background in practical chemistry have proved invaluable in solving the many and diverse problems presented by Museum conservation.

Forthcoming ROM publications

Of all the Royal Ontario Museum's vast and significant collections, the one most frequently mentioned is that of the Far Eastern Department, particularly its holdings of Chinese artifacts and crafts. The Chinese collection has been described as the largest outside China. But there has never been a comprehensive publication about it. That oversight will be corrected with the publication by the Museum in February of a *Handbook to the Far Eastern Collection*. The author is Henry Trubner, curator of the Department until last June when he resigned to join the Seattle Art Museum. The 126-page handbook, with 122 illustrations, eleven of them in colour, provides historical and descriptive background for the collection. Retail price on this important addition to the list of ROM publications has not been established but it will be less than ten dollars.

In January, the Museum publishes a two-volume guide to the new Gallery of Mineralogy, opened in November, 1967. The first volume is a general guide to the gallery and the mineralogy collections; the second is a comprehensive explanation of the teaching section with emphasis on the physical and chemical properties of minerals. The sequence of the second volume matches that of the cases in the gallery's teaching section. Dr. R. L. Gait, Assistant Curator of Mineralogy, is the author of the two volumes with Dr. V. B. Meen, Chief Mineralogist, contributing an important section in the first volume on gems. Each volume contains 36 pages, a map of the gallery and numerous illustrations. The two-volume set retails for only $1.00 at the ROM Sales Desk.

The Far Eastern Collection Handbook and the Mineralogy Gallery guides, together with the McLaughlin Planetarium handbook published earlier, are the first phase in a new publishing venture by the Museum. In coming months, handbooks and gallery guides on other Museum collections will appear.

From the Far Eastern Handbook: T'ang Dynasty tomb horse is over 28 inches high. Made of pottery with green, amber, and straw yellow glazes

The growing collections

The Far Eastern Department has added to its Japanese collection a landscape painting, "Visiting Friends in the Snow," by Hine Taizan (1814–1869). In ink and brown wash on paper, it is a late example of *bunjin* or literati painting, dated to 1858 and reflecting a China-oriented taste. *Bunjin* painters derived their styles from and patterned their lives after the gentleman-scholar painters of late Ming and Ch'ing China (17th–19th century).

A very fine eurypterid, *Eurypterus remipes*, from the Upper Silurian Salina formation near Ridgeway, Ontario, was recently purchased for the Department of Invertebrate Palaeontology. Eurypterids were aquatic chelicerate arthropods, much like present-day crayfish. They flourished in fresh and brackish waters of Ontario and New York State about 400,000,000 years ago, and became extinct about 250,000,000 years ago. The 3½-inch-long specimen lacks only the posterior spike.

Dr. J. A. Mandarino, Curator of the Department of Mineralogy, has shipped to the Museum five crates of mineral specimens originating from Scandinavia. The department has also purchased an excellent group of specular hematite crystals, from Brazil, while the gem collection has been enriched by a fine 34.60 carat yellow tourmaline and a striking 63-carat bi-colour tourmaline.

A collection of 50 fossil fish from Europe, mainly from classical locations in Scotland, has been purchased by the Department of Vertebrate Palaeontology. Many of the specimens are unusually well preserved and are from quarries no longer in operation. The finest will be featured on exhibition. The body of the collection will be used for research and teaching.

About two dozen objects from a private art collection including sculpture, pottery, terracottas, and Coptic textiles have been acquired by the Greek and Roman Department. Earliest in the group is an excellently preserved Cypriote amphora with black and red geometric decoration dating from about the 8th century B.C. At the other end of the chronological span is a Coptic tombstone of a well-known type of the 4th century A.D. showing a young boy holding a dove and a cluster of grapes. Outstanding in the lot is a fragmentary terracotta head of a girl of the late archaic period of about 500–480 B.C., comparable in style to some *korai* from the Athenian Acropolis. Among other objects in the group of Greek, Cypriote, Roman and Coptic pieces is the fine faience amulet in the form of Bes, the grotesque evil-averting deity whose worship persisted through Roman times in Egypt.

The Canadiana Department recently made some notable acquisitions at Sotheby's. One of the rarest is an 18th-century book about Canadian Indians, written and illustrated by Jacques Grasset de St. Sauveur, who was born in Montreal in 1757. The book, the Canadian section of an encyclopaedia, is still in the blue paper wrappers which date from its first appearance in 1796. It is illustrated with 18 hand-coloured aquatints of Canadian Indians which are much sought after today, even individually.

Another acquisition is one of the earliest views of Montreal ever published. It shows the city from the mountain, was originally drawn by Richard Dillon, and was published in 1803.

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